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03-075
MORPHOLOGICAL PECULIARITIES OF THE CHORIONIC STRUCTURE OF SOME BEETLE EGGS (COLOPTERA, TENEBRIONIDAE, GONOTRACAE)  
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For the first time the chorionic structure and the different chorionic layers of the following beetles are described. The original, thread-like eggshell was broken to reveal the different chorionic layers. Surface and cross-section of the chorionic layers are examined by scanning electron microscopy (SEM).  
Tenebrionidae:  
- Monoxa t. t. aloha: The eggshell consists of two layers. The surface of the outer layer shows a rough and irregular relief as well as its cross-section. The inner layer is characterized by a smooth surface as well as cross-section.  
- Saurornis decepta: The egg shell consists of two layers. The outer layer covers numerous crystals which are embedded into the outer surface of the inner layer. The inner layer shows a rough and irregular relief as well as its cross-section.  
- Female creasta F.: The eggshell consists of two layers. The outer layer is characterized by numerous thin pin which partly reach through this layer to the outer surface of the inner layer. The cross-section is rough and irregular. The inner layer is characterized by a smooth surface as well as cross-section.  
- Brachinus albipes: The eggshell consists of two layers. The surface of the outer layer consists of white waxy-like crystals. The inner layer is characterized by a smooth surface as well as cross-section.  
Conclusion:  
- Endométe ro coronatus: KAATT: The eggshell consists of at least two layers. The outer layer shows wide crests which are wax-like material. The second layer consists of glossy-like material with a rough broken cross-section. The third layer is characterized by a smooth surface as well as cross-section. The outer especially six layers are similar to fabric with numerous fibres. The last (inner) layer seems to be solid with a rough and irregular relief.  
The known chorion of many species of the Curculionidae, Chrysomelidae, Passalidae, Staphylinidae et al. in most cases possess micropyles visible on the exterior and interior surface of chorion as well as channels in cross-section. It is remarkable that the eggs of the above mentioned Tenebrionidae and Gonotracae lack any micropyles and channels extending completely through chorion.  

03-077
EYE DESIGN IN THE ELEPHANT HAWKmoth, Delphi da aleu  
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The elephant hawkmoth, like other moths, have an enormous field of view containing almost all directions except for those hidden by the body. We measured the total field of view and the visual overlap between the two eyes. We found that the overlap is about 45% (240° in diameter) in the anterior region below the animals head. While the upper limit is about 20° or less. The area of largest visual overlap is where the animals sit. The flowers they feed on during foraging flight.  
Using optical and histological methods we obtained values for the sensitivity to light, spatial sensitivity, and interommatidial angle of D. a. (Stryker, 1978) across the entire hawkmoth eye. We found the anterior-ventral area of the eye to have a high sensitivity to light and a high spatial sensitivity. The interommatidial angles of the different areas of the eye were measured and the results were compared to the sensitivity of the eye. The sensitivity values were obtained from an isolated eye in the dark. The results of the comparison showed that the sensitivity values correspond to the interommatidial angles.  

Orthogonal projections with the sensitivity and interommatidial angle (a measure of image grain-size) in the right eye represented by isolines. The isopleth borders mark the part of eye where the centres of the passed light are aligned. The isolines mark the border of the eye the maximum field of view is larger. Anterior is to the right in both figures.  

03-076
CORRESPONDING GENITAL MUSCLES IN MALE AND FEMALE MELICLONCHA MELICLONCHA (COLOPTERA: SCARABAEIDAE) AS INDICATORS OF MORPHOLOGICAL CORRESPONDENCE IN MALE AND FEMALE GENITAL SCLERITES  
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The sclerites of ectodermal genitalia are extremely different between both sexes in insects. In the cockchafer Melolontha melolontha (L.) males possess a epipilum ventrale and an aedeagus consisting of a phallobasis and two parameres surrounding the endophalus. In contrast, females possess only two pairs of reduced palpi vaginales and two setose fields. Despite these profound differences the genital musculature shows an extensive correspondence in the two sexes which has never been described in Pterygota. By myological comparison of both sexes considering origins, insertions, and topographic correlations of muscles the following hypotheses are inferred (Krell 1996): 1. Aedeagus and vaginal palp are derivatives of different units. 2. Spiculum gastrale and vaginal palp are derivatives of units IX (or from intersegmental area IX/X); bursa and aedeagus correspond morphologically. 3. The caudal part of Spiculum gastrale is of spermal or pleural origin. 4. The aedeagus is derived from unit X (or from intersegmental area X/X); bursa and aedeagus correspond morphologically. 6. The female genital tract has no sclerites corresponding to the aedeagus.  
Reference:  

03-078
ENDOSYMBIONT INCLUSION IN THE OOCYTES OF SILVERLEAF WHITEFLY, BEMISIA ARGENTIFOLII (HOMOPTERA: ALEYRODIDAE)  
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This study investigates the process of inclusion of endosymbiotic organisms from adult silverleaf whitefly, Bemisia argentifoli (Bellows and Perring), into the developing ova. In dissected females, individual mycocyte cells containing microorganisms were sequenced singly among developing oocytes. Oocytes with mycocytes included were first observed in females 16 h after a meal. The mean number of oocytes ≥ 0.1 mm in length per female increased through the fourth day after adult eclosion then levelled off.  
The number of oocytes containing mycocytes followed a similar pattern. Stages of mycocyte inclusion followed a pattern based on size of the oocyte. Oocytes became associated with a single mycocyte-cell when they were a mean of length of 0.135 ± 0.003 mm (minimum of 0.11 mm). Mycocytes were observed inside a common membrane with oocytes, at which becomes the pedicle end of the ova, when oocytes were an average of 0.147 ± 0.004 mm long. In the final stages of oovum development, the plasma of the oocyte completely surrounded the mycocyte and the chorion was thickened.  
Mycocytes included in oocytes had a mean length of 33 ± 0.4 μm and width of 27 ± 0.5 μm. Although the females that were dissected did have opportunity to oviposit, some retained several fully developed ova. Because inclusion of mycocytes into oocytes is a continuous process, manipulations of endosymbionts before inclusion into the oocytes should be possible at any time during adult life; however, earlier treatment of an individual would likely affect a greater proportion of their offspring.